IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

AFFYMETRIX, INC, Plaintiff, v. ILLUMINA, INC. Defendant.	C.A. No. 04-901 (JJF)

AFFYMETRIX'S RULE 50(A) MOTION FOR JUDGMENT AS A MATTER OF LAW AT THE CLOSE OF ALL THE EVIDENCE

Affymetrix hereby moves pursuant to Fed. R. Civ. P. 50(a) for judgment as a matter of law ("JMOL") that Illumina has infringed claims 2 and 9 of the '432 patent, claims 14, 15 and 35 of the '243 patent, claims 36 and 41 of the '365 patent, claims 1 and 2 of the '531 patent, and claims 1, 5 and 9 of the '716 patent, and owes damages to Affymetrix in the form of lost profits and a reasonable royalty.

I. RULE 50(a) ALLOWS JUDGMENT AS A MATTER OF LAW AGAINST A PARTY AFTER THAT PARTY HAS BEEN FULLY HEARD ON AN ISSUE.

Rule 50(a) allows the Court to enter JMOL if a party has been fully heard on an issue and the Court "finds that a reasonable jury would lack a legally sufficient evidentiary basis to find for the party on that issue." Fed. R. Civ. P. 50(a). "The question is not whether there is literally no evidence supporting the party against whom the motion is directed but whether there is evidence upon which the jury could properly find for that party." *Walter v. Holiday Inns, Inc.*, 985 F.2d 1232, 1238 (3d Cir. 1993) (citation omitted). In this case, at the close of all evidence, there is insufficient evidence upon which a jury could find for Illumina on Affymetrix's claims of infringement or damages.

II. JUDGMENT SHOULD BE GRANTED IN FAVOR OF AFFYMETRIX ON ALL ISSUES.

A. The Evidence Requires A Finding That Illumina Has Infringed All Of The Asserted Claims Of The Patents-In-Suit.

1. Infringement Standards

"Infringement . . . is determined by comparing an accused product [or method] not with a preferred embodiment described in the specifications . . . but with the properly and previously construed claims in suit." *SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985). "Literal infringement occurs when each element of at least one claim of the patent is found in the alleged infringer's product." *Corning, Inc. v. SRU Biosystems*, 400 F. Supp. 2d 653, 658 (D. Del. 2005). Additionally, an accused product or method that does not literally meet all elements of a claim may infringe that claim under the doctrine of equivalents. See *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 731 (2002) ("The scope of a patent is not limited to its literal terms but instead embraces all equivalents to the claims described.").

A party is liable for inducement of infringement by another where there is underlying infringement by the other, and the party intends to induce the infringing acts by that other. *See Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1318 (Fed. Cir. 2003). Evidence of infringing acts and of intent may be circumstantial. *See Golden Blount, Inc. v. Robert H. Peterson Co.*, 438 F.3d 1354, 1362-64 (Fed. Cir. 2006) (affirming infringement liability based on packaging of instruction manual with product).

2. No Reasonable Jury Could Find That Illumina Did Not Infringe The Asserted Claims Of The '432, '243, '365, '531 and '716 Patents.

Affymetrix offered evidence that Illumina has infringed all of the asserted claims, including, but not limited to, the opinions of expert witnesses. Dr. Kevin Struhl testified that Illumina's accused products and methods meet all of the limitations of each of the asserted claims of the '432, '243, '365 and '531 patents, and cited specific evidence in support of his conclusions. He also cited Illumina's product manuals, which command customers to follow the instructions "strictly and explicitly," instruct Illumina's customers to use the accused products in an infringing manner. Similarly, Dr. Rudy Guerra testified that Illumina's "GenCall" software and related technology met all of the limitations of the asserted claims of the '716 patent either literally or under the doctrine of equivalents. Dr. Guerra also cited the specific evidence upon which he based his opinions.

For many of the asserted claims, Illumina did not even attempt to offer evidence suggesting that its products and methods did not meet many of the limitations. As such, no reasonable jury could conclude that Illumina's products or methods did not meet such limitations. Even for those limiations that Illumina did contend it did not practice, no reasonable jury could accept Illumina's contentions.

a. The '432 Patent

Claims 2 and 9 of the '432 patent depend from claim 1. The only limitation of these claims that Illumina's experts disputed at trial was the limitation in claim 1, "said beads being encoded by an encoding system," construed by the Court to mean "said beads having a property associated with each bead (separate from the binding polymer) that can be used to distinguish one bead from another." There was no legally sufficient evidence adduced at trial to support a

determination by the jury that Illumina's products do not meet all of the limitations of claims 2 and 9 of the '432 patent.

Dr. Struhl testified the limitation "said beads being encoded by an encoding system" was met because Illumina records the location of the beads in a ".dmap" file before shipping its products to customers. As Dr. Struhl testified, the .dmap file is a "map" used to correlate bead position with intensity data scanned from the array, which is necessary to correlate these data with sequence information particular to each bead. Thus, Illumina's products used the locations of the immobilized beads as an "encoding system," under the Court's construction.

In its Markman Opinion, the Court noted that one way to "encode" beads would be "recording their positions within an array of immobilized beads." *See* Markman Op. at 4-5. Illumina's expert, Dr. Lusis, confirmed that Illumina records the positions of beads within its arrays after their application to the wells in Illumina's products (Tr. at1386:20-1388:9). Thus, no reasonable jury could conclude that Illumina's products do not meet the "encoding system" limitation of the asserted claims of the '432 patent. As such, there is insufficient evidence that would allow a reasonable jury to find that Illumina did not infringe claims 2 and 9 of the '432 patent.

b. The '243 Patent

Dr. Struhl testified, with support from Illumina documents, that all of the limitations of claims 14, 15 and 35 of the '243 patent were met by Illumina's products. Specifically, Illumina arrays designed for use with the GoldenGate, DirectHyb, and DASL assays infringed those claims.

Claim 15 is dependent from claim 14. Illumina argued only that its products did not meet a single part of one element of these claims, requiring "at least 1000 different spheres, beads or

particles having different species of nucleic acids attached thereto." As Dr. Struhl testified, however, all of the accused products included over 1,000 different beads to which different species of nucleic acids – different sequences – are attached. There was not sufficient evidence for a reasonable jury to find that Illumina's products do not meet this limitation. Illumina offered only grammatically incoherent readings of the claim terms. For example, "different species of nucleic acids" was interpreted by Dr. Lusis to refer to nucleic acids from different organisms or animal species, a nonsensical reading of the term.

With regard to claim 35, a method claim, Dr. Struhl explained that Illumina's array products infringed when used with the GoldenGate, DirectHyb, and DASL assays. He testified, with support from Illumina documents and other materials, that all limitations of the claim were met by these assays, and provided evidence that Illumina instructed its customers to use its products and assays in an infringing manner. There was not sufficient evidence for a reasonable jury to conclude that Illumina did not infringe claim 35. No reasonable jury could accept Illumina's contentions that claim 35 required beads of different sizes or shapes, or that it referred to a "sandwich assay."

There is insufficient evidence to allow a reasonable jury to conclude that any of the elements of the asserted claims were not met.

c. The '365 Patent

There was not sufficient evidence at trial to allow a reasonable jury to find that Illumina's products and methods did not infringe claims 36 and '41 of the '365 patent, or that Illumina did not induce infringement of claim 41 by its customers. Dr. Struhl, citing evidence including Illumina documents, testified that all of Illumina's array products met the limitations of claim 36,

and that the use of any of Illumina's array products included all elements of the method of claim 41. Dr. Struhl also testified that Illumina instructed its customers to practice the claimed method.

Illumina contested only two limitations of each claim[1], making the same arguments for both claims. Illumina contended that its products did not include "immobilized" biological polymers. Illumina also contended that its products did not meet the limitation "wherein said biological polymers have a density exceeding 1000 different nucleic acids per cm^2" of claim 36 or "having a density exceeding 100 different polymers per cm^2" in claim 41.

The record contained no evidence that the beads of Illumina's arrays are in some way mobile, or not "immobilized." For example, Dr. Lusis admitted that for Illumina's products to work, the beads could not fall out of their wells or change position. Illumina's manuals direct its customers to shake the arrays "vigorously" after application of a sample. (Tr. at 756:11-757:2) Additionally, Dr. Lusis admitted that the beads to which the biological polymers are attached are "immobile." (Tr. at 1371:22-1372:16). No reasonable jury could conclude that "immobile" beads are not "immobilized."

Additionally, all of Illumina's array products contain more than 1000 beads per cm^2 over the two-dimensional area of the array. (Tr. at 1373:19-1374:8). There was not sufficient evidence for a reasonable jury to conclude otherwise.

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[1] Illumina also raised a previously unidentified defense that the "immobilized" element was not met by its GoldenGate, DirectHyb, and DASL products under a novel interpretation of the Court's construction, "two or more surface-immobilized biological polymers that are recognized by a particular target." Affymetrix has moved separately to preclude this theory as untimely. In addition to being disclosed far too late to be relied upon as a defense and unsupported by any evidence, it is also based on an incorrect reading of the Court's definition of the term "two or more surface-immobilized biological polymers that are recognized by a particular target." The definition makes clear that each of the two or more polymers is recognized by *a particular target*. It does not require that both polymers be recognized by the same "particular" target. There was not sufficient evidence adduced at trial to support a finding under this or any other theory that Illumina's products and methods do not meet this element.

d. The '531 Patent

Dr. Struhl, citing evidence including Illumina materials, testified that all of the limitations of the methods of claims 1 and 2 of the '531 patent were met by Illumina's array products when used by Illumina and its customers with the GoldenGate, DirectHyb and DASL assays. Dr. Struhl testified that Illumina's manuals instructed customers to practice all elements of the claimed methods not met by Illumina itself, and that customers would follow these instructions.

Illumina contested only one limitation of these claims; namely, "a wafer comprising on its surface a plurality of probe arrays." Dr. Struhl explained how the probe arrays in Illumina's Array Matrix products were attached to the surface of a metal backing, and Illumina's BeadChip products contained bead arrays immobilized on the surface of a slide. No reasonable jury could accept Illumina's contentions based on the evidence adduced at trial. Indeed, Dr. Lusis testified that he did not even know what the probe *arrays* on Illumina's *Array* Matrix products were. (Tr. at 1368:4-6)

There is clearly not sufficient evidence to allow a reasonable jury to conclude that any elements of claim 1 or 2 were not met by Illumina's products.

e. The '716 Patent

Affymetrix presented evidence, including through the expert testimony of Dr. Rudy Guerra, based on evidence including Illumina documents, that Illumina's GenCall genotyping software and related technology met all limitations of claims 1, 5 and 9 of the '716 patent. Specifically, GenCall infringes claim 1 and 5 when used with data from the Infinium and GoldenGate assays, and claim 9 when used with data from the Infinium assay. Given the evidence adduced at trial, no reasonable jury could find that Illumina's products did not infringe.

Dr. Guerra explained how the GenCall software, with data generated from Illumina's genotyping assays, met all limitations of the asserted claims either literally or under the doctrine of equivalents. He explained that both assays involve signal intensity data indicating an extent of hybridization between a probe and a sample nucleic acid derived from a labeled sample nucleic acid hybridized to a probe location. Illumina, through its expert, Dr. John Quackenbush, contested a number of elements of the asserted claims, but did not present legally sufficient evidence to allow a reasonable jury to find noninfringement. In particular, Dr. Quackenbush admitted that Illumina's software "generates a base call." (Tr. at 1307:15-1308:5) and "performs a comparison of said plurality of probe intensities to each other" (Tr. 1311:21-1312:2):

> Q: . . . My question is: The program, as it exists, cannot do the cluster analysis without inputting these two intensities . . . and comparing those to each other; is that correct?
>
> A: That's absolutely true, but I think it's irrelevant.

There is not legally sufficient evidence to allow a reasonable jury to find that Illumina's software and related technology did not meet all limitations of claims 1, 5, and 9 of the '716 patent, either literally or under the doctrine of equivalents.

B. The Evidence Requires A Finding That Affymetrix Is Owed Damages In The Form Lost Profits And A Reasonable Royalty Rate Not Less Than 12%

Under the required legal standards, the Court should grant judgment that Illumina is liable for Affymetrix's lost profits and a reasonable royalty of at least 12% as a matter of law because there is not sufficient evidence to allow a reasonable jury to find otherwise.

1. Legal Standards For Determining Damages

The patent statute "imposes no limitation on the types of harm resulting from infringement that the statute will redress. The section's broad language awards damages for any injury as long as it resulted from the infringement." *King Instruments Corp. v. Perego*, 65 F.3d

941, 947 (Fed. Cir. 1995). "The phrase 'damages *adequate to compensate*' means full compensation for 'any damages' [the patent owner] suffered as a result of the infringement." *Grain Processing Corp. v. American Maize-Prods. Co.*, 185 F.3d 1341, 1349 (Fed. Cir. 1999) (citing *General Motors Corp. v. Devex Corp.*, 461 U.S. 648 (1983)). "Full compensation includes any foreseeable lost profits the patent owner can prove." *Id.* A damage award shall be "in no event less than a reasonable royalty," which sets the floor below which a damage award may not fall. *See Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1544 (Fed. Cir.). "[T]he Supreme Court has interpreted [35 U.S.C. § 284] to mean that 'adequate' damages should approximate those damages that will *fully compensate* the patentee for infringement." *Id.* at 1545.

a. Lost Profits

To recover lost profits based on lost sales, the patent owner has an initial burden to show a reasonable probability that, but for the infringement, it would have made the infringer's sales. *See Crystal Semiconductor*, 246 F.3d at 1336; *State Indus.,* 883 F.2d at 1577. The patent owner is not required, however, to negate all possibilities that a purchaser might have bought a different product or might have foregone the purchase altogether. *State Indus.,* 883 F.2d at 1577. Once the patent owner has met its initial burden, "[t]he burden then shifts to the infringer to show that the ['but for' claim] is unreasonable for some or all of the lost sales." *Rite-Hite*, 56 F.3d at 1545. The patentee need not use the patented invention as a prerequisite to recovery of lost profits. *King Instruments*, 65 F.3d at 947.

One recognized method for proving lost sales – often called the *Panduit* test – requires the patent owner to prove: (1) demand for the patented product; (2) absence of acceptable noninfringing substitutes; (3) manufacturing and marketing capacity to exploit the demand; and (4) the amount of the profit that it would have made. *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1978). The *Panduit* test is an acceptable, though not

exclusive, test for determining the availability of lost profits. *BIC Leisure Prods., Inc. v. Windsurfing Int'l,* 1 F.3d 1214, 1218 (Fed. Cir. 1993).

Another way to establish lost profits from lost sales is the market share approach that the Federal Circuit adopted in *State Industries*. Under this approach, even in the presence of acceptable noninfringing alternatives, a patent owner can recover lost profits based on its market share of the infringing sales, if the patent owner meets the other *Panduit* factors and shows an established market share in the relevant product market. *State Indus.*, 883 F.2d at 1576.

b. Reasonable Royalty

A patentee is entitled to no less than a reasonable royalty on an infringer's sales for which the patentee has not established entitlement to lost profits." *Rite-Hite*, 56 F.3d at 1554. "A patentee receives a reasonable royalty for any of the infringer's sales not included in the lost profit calculation." *Crystal Semiconductor,* 246 F.3d at 1354 "Thus, a patentee may obtain lost profit damages for that portion of the infringer's sales for which the patentee can demonstrate 'but for' causation and reasonable royalties for any remaining infring[ement]." *Id.*

"A reasonable royalty is the amount of money that would be agreed to in a hypothetical arms length negotiation between the owners of the patent rights and the infringer, with both operating under the assumption that the negotiated patent is not invalid and is infringed." *Johns Hopkins*, 894 F. Supp. at 838. "[W]hat an infringer would prefer to pay is not the test for damages." *Rite-Hite*, 56 F.3d at 1555. The hypothetical negotiation is presumed to take place on the eve of first infringement. *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1079 (Fed. Cir. 1983). "The Court also must assume, for purposes of the hypothetical negotiation, that all parties would have known all relevant information." *Mobil Oil Corp. v. Amoco Chem. Co.*, 915 F. Supp. 1333, 1353 (D. Del. 1995). The hypothetical negotiation speaks of negotiations as

of the time infringement began, yet a court may look to events and facts that occurred thereafter and that could not have been known to or predicted by the hypothetical negotiators. *Studiengesellschaft Kohle GmbH v. Start Indus. Inc.*, 862 F.2d 1564, 1571-72 (Fed. Cir. 1988).

In determining a reasonable royalty, courts often apply the fifteen factors first enunciated in *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *modified and aff'd*, 446 F.2d 295 (2d Cir.); *See Unisplay, S.A. v. American Elec. Sign Co.*, 69 F.3d 512, 517, n.7 (Fed. Cir. 1995) (citing to *Georgia-Pacific* factors).

2. The Court Should Enter Judgment As A Matter Of Law That Illumina Is Liable For Lost Profits Damages And a Reasonable Royalty Rate Of At Least 12%.

There was not sufficient evidence to allow a reasonable jury to find that Illumina does not owe lost profits for its infringement and a reasonable royalty of 12% on all other infringing sales.

a. Lost Profits

The jury could not reasonably find that Affymetrix is not entitled to lost profits. It is not disputed that Affymetrix and Illumina are head-to-head competitors, and in many cases are the only competitors in a "two player" market. Affymetrix's damages expert, Dr. Matthew Lynde, explained how Illumina's sales of infringing products had lost Affymetrix sales. Dr. Lynde used an established method to calculate Affymetrix's lost profits based on Illumina's revenues and Affymetrix's share of relevant markets. Dr. Lynde used the *Panduit* test and market share apportionment theories endorsed by the Federal Circuit to calculate lost profits.

Illumina's damages expert, Mr. Raymond Sims, admitted that Affymetrix and Illumina were the only companies offering whole genome genotyping arrays during the relevant period, and were direct competitors in the custom genotyping and gene expression markets. (Tr. at 1485:7-1486:20). He also admitted that Illumina took sales from Affymetrix. (Tr. 1484:6-

7)("I'm not suggesting they might not have made some sales"), yet opined that no lost profits were owed due to these lost sales. There is not sufficient evidence for any reasonable jury to accept Illumina's position that Affymetrix is not entitled to lost profits. As such, the Court should grant JMOL law awarding Affymetrix lost profits in the amount of $24,237,000.

b. Reasonable Royalty

No reasonable jury could find that Affymetrix is entitled to a reasonable royalty rate of less than 12% for all other sales by Illumina of infringing products. As Dr. Lynde testified, there are 11 comparable licenses for the commercial sale of microarrays negotiated at arm's length between Affymetrix and third parties. These licenses stipulated royalty rates between 8 and 20%. In addition, some of these licenses incorporated significant upfront fees in addition to the royalty. Dr. Lynde assessed all of the *Georgia Pacific* factors in arriving at his reasonable royalty rate of 12%.

By contrast, Mr. Sims failed to consider comparable licenses that actually licensed the patents-in-suit. His calculated "reasonable" royalty rate – negotiated by a willing licensor and licensee – was not appreciably greater than Illumina's offer of 3% in the actual negotiations. Affymetrix proposed the equivalent of a 20% royalty, and clearly did not and would not have accepted Illumina's proposed rate.

There is not sufficient evidence to allow a reasonable jury to arrive at a royalty rate of less than 12% for those sales not included in the lost profits analysis. The Court should grant JMOL awarding Affymetrix a 12% royalty on those sales in the amount of $12,249,000.

CONCLUSION

For the foregoing reasons, the Court should enter JMOL that Illumina has infringed all of the asserted claims of the patents-in-suit, and that Affymetrix is entitled to damages in the form of lost profits in the amount of $24,237,000 and a reasonable royalty of not less than 12% in the amount of $12,249,000 on all other sales of infringing products.

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CERTIFICATE OF SERVICE

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